

# PATENT SPECIFICATION

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191,594

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## PROVISIONAL SPECIFICATION.

### Improvements in Apparatus for use in Softening, Sterilizing or otherwise Treating Water.

I, HENRY JAMES MAGRATH, of 10/11, Berkley Street, Clerkenwell, London, E.C. 1, British nationality, do hereby declare the nature of this invention to be as follows:—

This invention relates to apparatus for use in softening, sterilizing or otherwise treating water. For some considerable time a demand has existed for a portable water softening apparatus, or a form of apparatus which can be installed without the necessity of making plumber's joints in the piping of a house. In the Specification of my Patent No. 18,867 of 1914 an apparatus is described which is suitable for domestic use, but this requires permanent connexions. It is the object of this invention to provide a simpler type of apparatus which can be operated by anyone so as to obtain a quantity of softened water, and which can be carried about from place to place wherever it may be required. A further object is to avoid the necessity for fitting the apparatus with cocks which are liable to become stiff or to be scored by fine particles.

According to this invention a container is provided which may, for instance, be in the form of a cylinder 2" or more in diameter, and 10" or more in length. These dimensions are given purely as an example and the containers may be made substantially larger than this, or even smaller than this under certain circumstances. The container is provided with two orifices, one at or near the bottom and one near the top thereof. Both orifices may be of the same size, or one may be larger. In one form of the apparatus designed for downward flow, the container is provided with a hook, clip or the like near the top whereby it may be hung on to the side of a jug, bucket, tank or other vessel which may hold water. The container is charged with water softening material such as a natural or artificial zeolite, and a perforated disc of any suitable material is placed over the zeolite or

the like in order to keep it in place. A plug or stopper formed, for example, of rubber is provided at the top of the container, and flexible tubing, preferably of rubber, is provided for connexion with the orifices at the top and bottom of the container. The tubing from the bottom should be of sufficient length to reach down to any vessel in which the softened water is to be received, and to give an efficient siphon action when the container is closed. In starting the apparatus, the container is hung upon a tank or jug for example containing water, placed on a shelf at a sufficient height above the receiving vessel to provide a head for siphoning purposes. Water is poured into the container and is allowed to stand therein while bubbles pass out of the material. The outlet tube may be nipped by hand or by a clip in order to prevent escape of water therethrough. When the container is full and the bubbling has ceased the plug or stopper is inserted at the top of the container and is pressed in. This forces water through the inlet pipe expelling air therefrom and insuring that this pipe is filled with water. The inlet pipe is allowed to hang down into the tank or vessel from which the water is to be drawn, while the water is siphoned off through the container, being softened therein and delivered to any receptacle placed at a lower level. The flow is slow of course, and if any considerable quantity of water is required the apparatus must be set up and left for a time, say two or three hours, while water is passing through it. It depends entirely upon the size of the apparatus and the amount of softening reagent which can be contained therein, what speed of flow can be permitted for complete softening of the water.

In an alternative form of the apparatus the softening is effected by upward filtering through the material. In this case the container merely requires an aperture

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Fig.1.

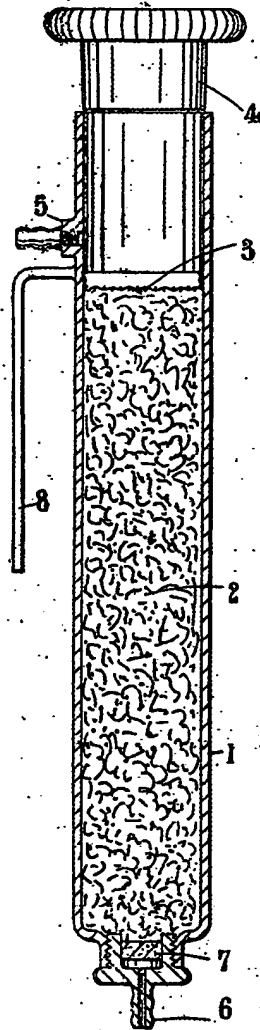
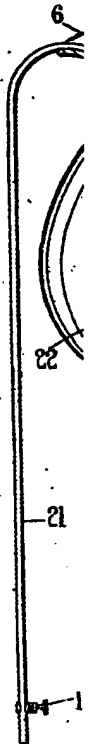
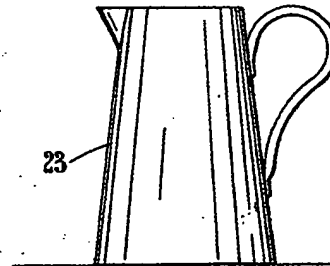
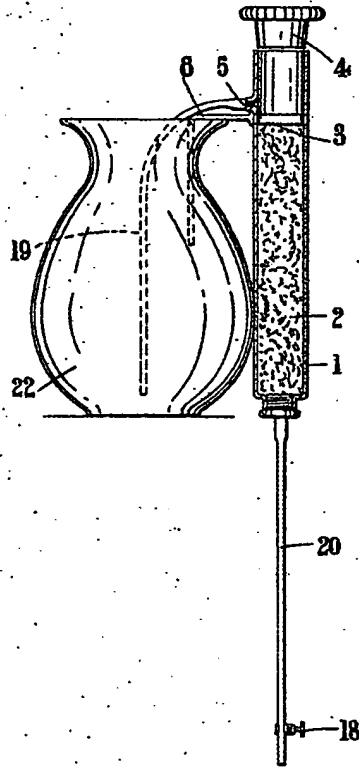
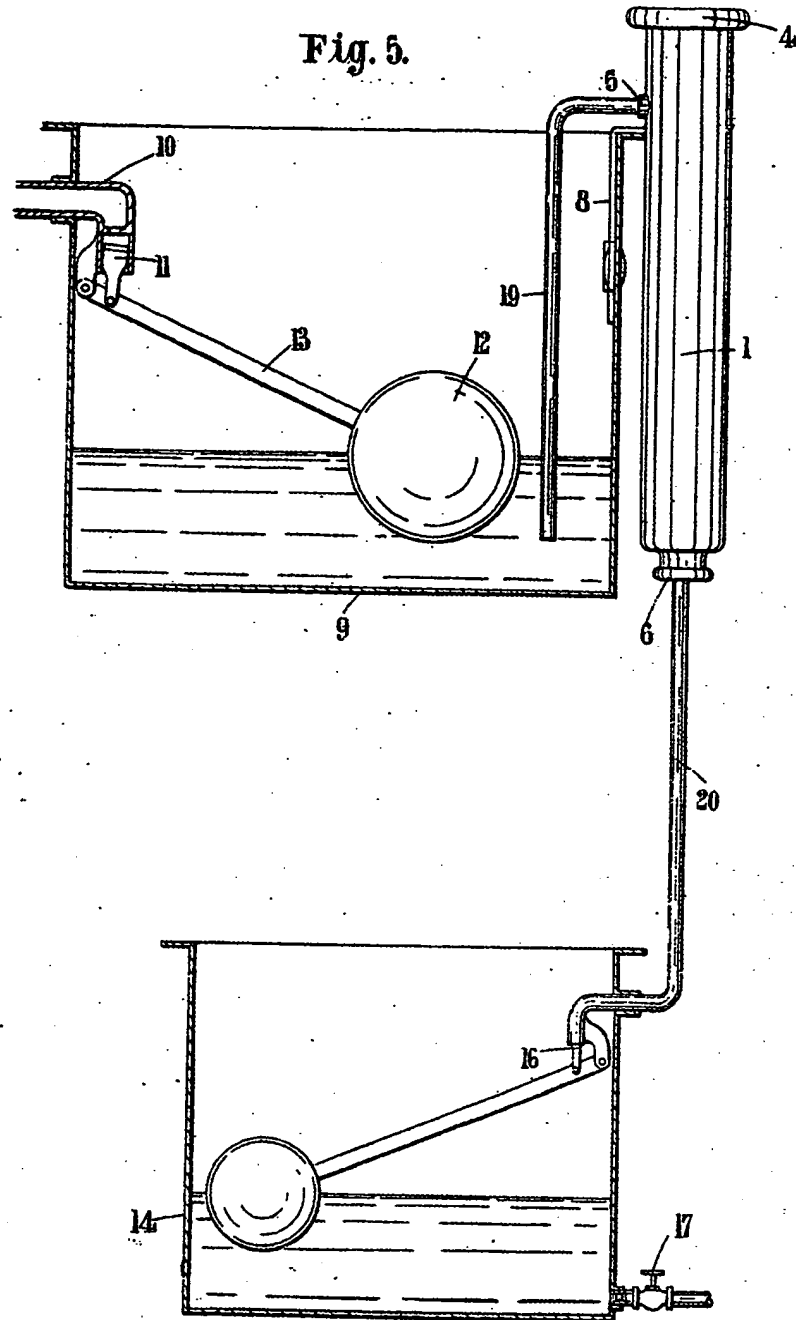


Fig.2.



[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 5.



[This Drawing is a reproduction of the Original on a reduced scale.]

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